Arizona Department of Health Services

REPORT TO ADHS WITHIN 24 HOURS

Pertussis-Quick Sheet

Infectious agent: *Bordetella pertussis* (a fastidious, gram-negative, pleomorphic bacillus)
Mode of transmission: Transmitted from person to person via aerosolized droplets produced from a cough or sneeze or by direct contact with secretions from the respiratory tracts of infectious individuals. As many as 80% of nonimmune household contacts acquire the disease
Period of communicability: Infectious for five days after the start of appropriate antibiotics. If untreated, infectious for three weeks from the start of cold-like symptoms.

CDC Case Definition and Classification *(for purposes of public health reporting)*

Clinical Case Definition

- A cough illness lasting at least two weeks **AND**
- paroxysms of coughing or inspiratory "whoop" or post-tussive vomiting **AND**
- without other apparent cause

Laboratory Criteria for Diagnosis

- Isolation of *Bordetella pertussis* from clinical specimen
- Positive polymerase chain reaction (PCR) for *B. pertussis*

  *A positive serology test result or a direct fluorescent antibody test (DFA) of nasopharyngeal secretions does not make a case confirmed for reporting purposes.

Specimen to Collect forward all specimens to Arizona State Laboratory)
Nasopharyngeal swab (Dacron swab) in Regan-Lowe media (see "Instructions for Collecting Nasopharyngeal Swab Specimens")

Case Classification *(Both confirmed and probable cases are officially reported)*

- **Confirmed:** An acute cough illness of any duration associated with *B. pertussis* isolation, or a case that meets the clinical case definition and is confirmed by PCR, or a case that meets the clinical case definition and is epidemiologically –linked directly to a case confirmed by either culture or PCR.
- **Probable:** a case that meets the clinical case definition, is not laboratory confirmed, and is not epidemiologically linked to a laboratory-confirmed case
- **Outbreak Setting:** a case may be defined as a cough illness lasting 2 weeks or greater.

Clinical Features

Subclinical Infection
The role of subclinical infection is unknown.

Incubation period
Commonly 7-10 days, but can range from 6 to 21 days. One study has suggested the incubation period for pertussis to be as long as 42 days.

Catarrhal (or Prodromal) Stage
Onset of cold-like symptoms (coryza, sneezing, mild fever, occasional cough) that lasts approximately 1-2 weeks with cough gradually becoming more severe.

Paroxysmal Stage
Characterized by patient having bursts (paroxysms) of numerous, rapid coughs, sometimes followed by high-pitched "whoop," cyanosis, apnea, post-tussive vomiting/gagging, and/or sticky mucus production. Usually lasts 1-6 weeks, but may last up to 10 weeks
Variations of prodromal stage:
Infants (<6 months): Cough, choking, cyanosis, paroxysms. May not have "whoop".
Adults/teenagers/immunized children: Milder illness, hacking cough, occasional paroxysms, and usually with sticky mucus production. Sometimes post-tussive vomiting and gagging, may not have "whoop." Mimics bronchitis.

Convalescent Stage
Gradual recovery, with cough becoming less frequent and less paroxysmal. Generally, cough disappears after 2-4 weeks, but some will have temporary recurrence of cough paroxysms with respiratory infections for next several months.

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Recommended Treatment and Chemoprophylaxis

The antimicrobial agents and dosages used for chemoprophylaxis of contacts are the same as that recommended for treatment of a clinical case. Antimicrobial treatment should be initiated as soon as pertussis is suspected in a patient. If pertussis is highly suspected in a patient, chemoprophylaxis of all household and close contacts is recommended regardless of age and vaccination status.

Drug	***Children***	***Adults***
Erythromycin	40-50 mg/kg/day p.o. divided into 4 doses /day for 14 days (max of 2 gms/day)	1 to 2 g/day orally in 4 divided doses for 14 days (maximum 2 g/day)
Trimethoprim/ Sulfamethoxazole **OR** Clarithromycin **OR** Azithromycin	>=2 mos. old: 8 mg TMP/40 mg SMX per kg/day p.o. divided into 2 doses/day for 14 days. 15–20 mg/kg/day in two divided doses, max 1 g/day, for 10-14 days 10-12 mg/kg/day for 5-7 days	TMP 320 mg/day, SMX 1600 mg/day in two divided doses for 14 days 15-20 mg/kg/day in two divided doses, max 1g/day, for 10-14 days 10-12 mg/kg per day in one dose, max 500 mg/day, for 5-7 days

Pertussis Case Investigation

A Pertussis Surveillance Worksheet and Communicable Disease Reporting Form must be completed and submitted for each confirmed and probable case of pertussis. For reporting of Pertussis Deaths, complete a Communicable Disease Reporting Form and a Pertussis Death Worksheet. Reporting is **mandated** by Arizona Administrative Code *(R9-6-343)*.

Investigation Process:
1 Upon notification, contact the physician to confirm the diagnosis.
2 A nasopharyngeal (NP) specimen should be obtained for culture as soon as possible, before antibiotic therapy begins. (Antibiotic therapy should not be delayed if culture kit is not available). If case is culture confirmed at a reference laboratory, assure that isolate is forwarded to the Arizona State Laboratory.
3 The case should be treated with antibiotics and excluded from school, childcare, or other group setting through the completion of the first 5 days of recommended antibiotic treatment.
4 Conduct interview to collect important demographic and clinical information, record information on Pertussis Surveillance Worksheet
5 Assess exposure to others in household and other settings (school, work, etc) by determining all contacts at possible risk. Use the diagram below to help determine the potential case's period of infection, communicability, and illness.

The following time line depicts the clinical course of pertussis and may be useful in an investigation

<table>
<tr><td colspan="3">Exposure & Incubation
Incubation Period
5-21 days</td><td colspan="3">Onset & Communicability
Catarrhal Stage
1-2 weeks</td><td colspan="6">Paroxysms
Paroxysmal Stage
1-6 weeks</td><td colspan="4">Convalescence
Convalescent Stage 2-3 weeks</td></tr>
<tr><td>Weeks: -3</td><td>-2</td><td>-1</td><td>0 +1 (onset)</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr>
<tr><td colspan="2">Maximum incubation period 21 days*</td><td>Average incubation period 7-10 days</td><td colspan="2">*Communicability* Cold symptoms: rhinorrhea, anorexia, conjunctivitis, lacrimation, malaise, sneezing, and low-grade fever</td><td colspan="6">Paroxysmal cough, vomiting, cyanosis, (and apnea if less than 6 months old)
Communicability ends after 5 days of appropriate antibiotics</td><td colspan="3">Communicability generally ends 3 weeks after onset of paroxysmal cough if no antibiotics taken</td><td colspan="4">Coughing</td></tr>
</table>

*Except rarely up to 42 days in infants and immunocompromised cases

Managing Household and Other Close Contacts

Close contact examples: household, face-to-face, coughing or sneezing in face, sharing eating utensils, kissing, conducting medical examination, sharing confined space in close proximity to case patient for period of time with symptomatic case patient
1. Identify close contacts and give prophylaxis (antibiotics) as appropriate.
   - Close contacts less than seven years of age who are unimmunized or have received fewer than 4 doses of pertussis vaccine should, in addition to antibiotic prophylaxis, have pertussis immunization initiated or continued according to the recommended schedule. Those who have had four doses of

pertussis vaccine should receive a booster dose of DTaP unless a dose has been given within the last three years or they have reached age 7 years.

2. Exclude suspected (symptomatic) cases from school/day-care until they have completed the first 5 days of antibiotic treatment.
3. Antibiotic prophylaxis usually not effective if started more than 3 weeks after exposure. However, consider prophylaxis up to 6 weeks after exposure for high risk contacts (infants, immunocompromised cases, or those with chronic lung disease)

Managing Close Contacts in Daycare/Schools

1. Perform an immunization record review of children < 7 years old in the daycare/school classroom. Give DTaP to those due/overdue for dose.
2. Exposed children should be observed carefully for respiratory symptoms for 21 days after the last contact with the case.
3. Pertussis immunization and chemoprophylaxis should be given to close contacts (if 2 cases in classroom, give prophylaxis to all children and staff in the room).
4. Symptomatic children should be excluded, pending physician evaluation to determine cause of their symptoms. Children with pertussis, if their medical condition allows, may return or enter school after completing the first 5 days of the recommended antibiotic treatment.
5. Alert parents (see *"Sample Pertussis Alert Letter"*) and local physicians to the situation.
6. Antibiotic prophylaxis usually not effective if started more than 3 weeks after exposure. However, consider prophylaxis up to 6 weeks after exposure for high risk contacts (infants, immunocompromised cases, or those with chronic lung disease)

Managing Close Contacts in Health Care Facilities

1. Put case in isolation and on droplet precautions until on appropriate antibiotics for 5 days or, if not given appropriate antibiotics, for 21 days after cough onset.
2. Give chemoprophylaxis. to close contacts. Chemoprophylaxis is of little benefit if not started within 3 weeks after exposure. However, consider chemoprophylaxis up to 6 weeks after exposure for high-risk contacts (infants, immunocompromised cases, or those with chronic lung disease).
3. Do not count on cases or contacts wearing masks to prevent transmission
4. Continue surveillance for new cases in (affected parts of health care facility for 6 weeks after cough onset of index case)
5. Immunize any contacts < 7 years old who are not fully immunized against pertussis and are currently due for a vaccine dose.